

Remarks

Claims 1-13 and 16 are pending in the application. Claims 14 and 15 have been canceled and claim 1 has been amended.

Claim Rejections – 35 U.S.C. §101

Claims 1-13 and 16 have been rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Examiner contends that the claims do not result in a physical transformation, and thus, a determination that the claims include a useful, concrete and tangible result must be made. The Examiner concludes that claims 1-13 and 16 do not require production of a tangible result, and therefore, are non-statutory. Claim 13 has been rejected as being non-statutory because it reads on a natural phenomenon.

A new ground of rejection for claims 1-12 under 35 U.S.C. §101 has been issued. The Examiner contends that the claimed process of comparing molecules does not recite a physical transformation of matter from one state to another, and further, the process is not tied to a particular machine. It is the Examiner's position that the claimed process does not pass the *Bilski* "machine-or-transformation test".

Claim 1 has been amended to recite a computer-implemented method of identifying candidate molecules having a known biological or physicochemical activity. The method includes the steps of providing a set of field points representing field extrema of a first molecule, wherein each field point has a position and a field size value, the molecule having a known biological activity or physicochemical; determining at the position of each of the field points of the first molecule the field of a second molecule to obtain a set of field sample values; combining the field sample values with the field size values to provide a score indicative of the field similarity of the first molecule to the second molecule; and employing the score to identify the second molecule as a potential candidate molecule having the known biological or physicochemical activity.

The Federal Circuit's recent decision in *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) is dispositive of what test or set of criteria governs the determination by the PTO or courts as to whether a claim to a process is patentable under §101. As the Federal

Circuit phrased the “machine-or-transformation” test of *Bilski*:

A claimed process is surely patent-eligible under §101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

Id. at 954 (emphasis in original). The “useful, concrete, and tangible result” test of *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1373 (1998) has been rejected by the Federal Circuit and is no longer valid. See *In re Ferguson*, No. 2007-1232, slip. op. (Fed. Cir. Mar. 6, 2009).

The claimed process satisfies the “transformation” prong of the “machine-or-transformation” test, and therefore is patent-eligible under §101. Under the transformation prong of the *Bilski* test, data transformations are acceptable if the data represents physical objects or substances (Id. at 962-963). In the claimed process, the data that is transformed represents physical and tangible objects, namely molecules. The field points and field sample values represent information about particular molecules. As stated in the specification at page 4, lines 1-5:

The field point set encodes a large amount of information about the properties of the molecule, especially regarding its interaction with other molecules. The electrostatic field points encode information about the preferred hydrogen-bonding environment of the molecule, while the surface interaction field points encode the molecule’s steric bulk.

As illustrated in Fig. 1, the molecular structure and interactions of formic acid are transformed into a set of field points. The field point data is further transformed to a score indicative of the field similarity of a first molecule to a second molecule. The score is used to identify the second molecule as a potential candidate molecule having a known biological or physicochemical activity. The transformation is central to the purpose of the claimed process. Moreover, the claimed process is not an abstract idea, but produces a tangible, real-world result in a form that is useful to the user of the process. Specifically, the claimed process results in the identification of a molecule having a known biological or physicochemical activity, which is useful to the user of the process in, for example, drug discovery and pharmaceutical research. Process claims

1-12 pass the “machine-or-transformation” test of *Bilski*, and are therefore drawn to patent-eligible subject matter.

Claim 13 is directed to a computer interpretable recording medium. As set forth in the specification at page 9, lines 13-21, Applicants describe a computer interpretable medium that may be a signal carrier medium. Additionally, the computer interpretable medium may also be a recording medium. Examples of computer interpretable recording medium include magnetic or optical storage medium, or a latent or non-latent computer memory device. Applicants intend the broader term “computer interpretable medium” to include the sub-categories of “signal carrier medium” and “recording medium”. Claim 13 recites a computer interpretable recording medium. As such, claim 13 is not intended to cover a signal carrier medium. Accordingly, claim 13 is drawn to patent eligible subject matter. Applicants respectfully request the withdrawal of the rejection of claims 1-13 and 16 under 35 U.S.C. §101.

Conclusion

In view of the foregoing amendments and remarks, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

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/Denise G. Bachtel/
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Date